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Geology Museum

Intro to Geologic Cores

Photo by Missy Holzer (PolarTREC 2008), Courtesy of ARCUS

Dr. Lauren Neitzke Adamo

Introduction to Cores

A core sample is a cylindrical section of (usually) a naturally occurring substance. Most core samples are obtained by drilling with special drills into the substance, for example sediment or rock, with a hollow steel tube called a core drill.
-Wikipedia

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Tree Ring Cores

Photos Courtesy of ARCUS

Photo by Mark Paricio
(PolarTREC 2012)

Photo by Amanda Ruland
(PolarTREC 2019)

Photo by Allyson Woodard
(PolarTREC 2018)

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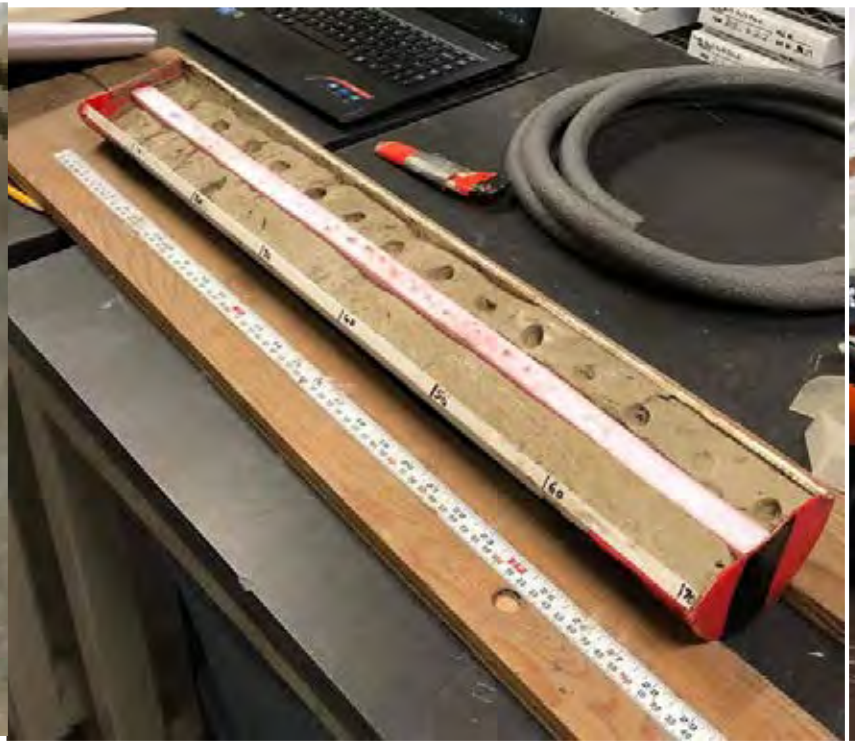
Sediment and Rock Cores



Photos courtesy of Lauren Neitzke Adamo

Photo by Monica Nuñez
(PolarTREC 2019)
Courtesy of ARCUS

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Ice Cores

Photos Courtesy of Arcus

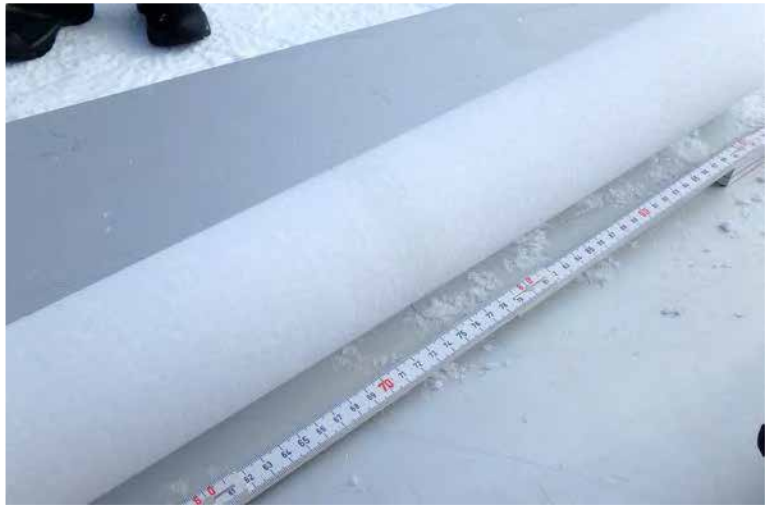

Photo by Steve Kirsche
(PolarTREC 2017)

Photo by Bill Schmoker
(PolarTREC 2015)

Photo by Cheri Hamilton
(PolarTREC 2009)

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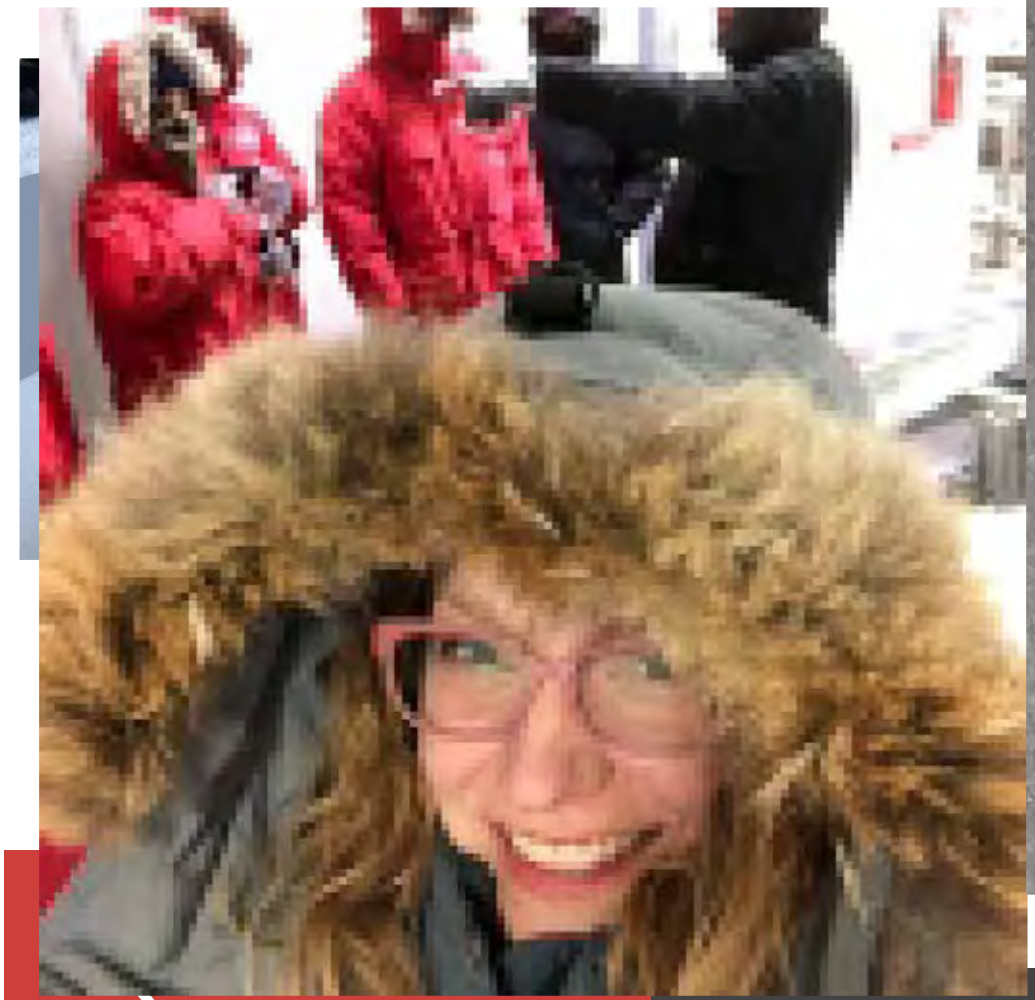
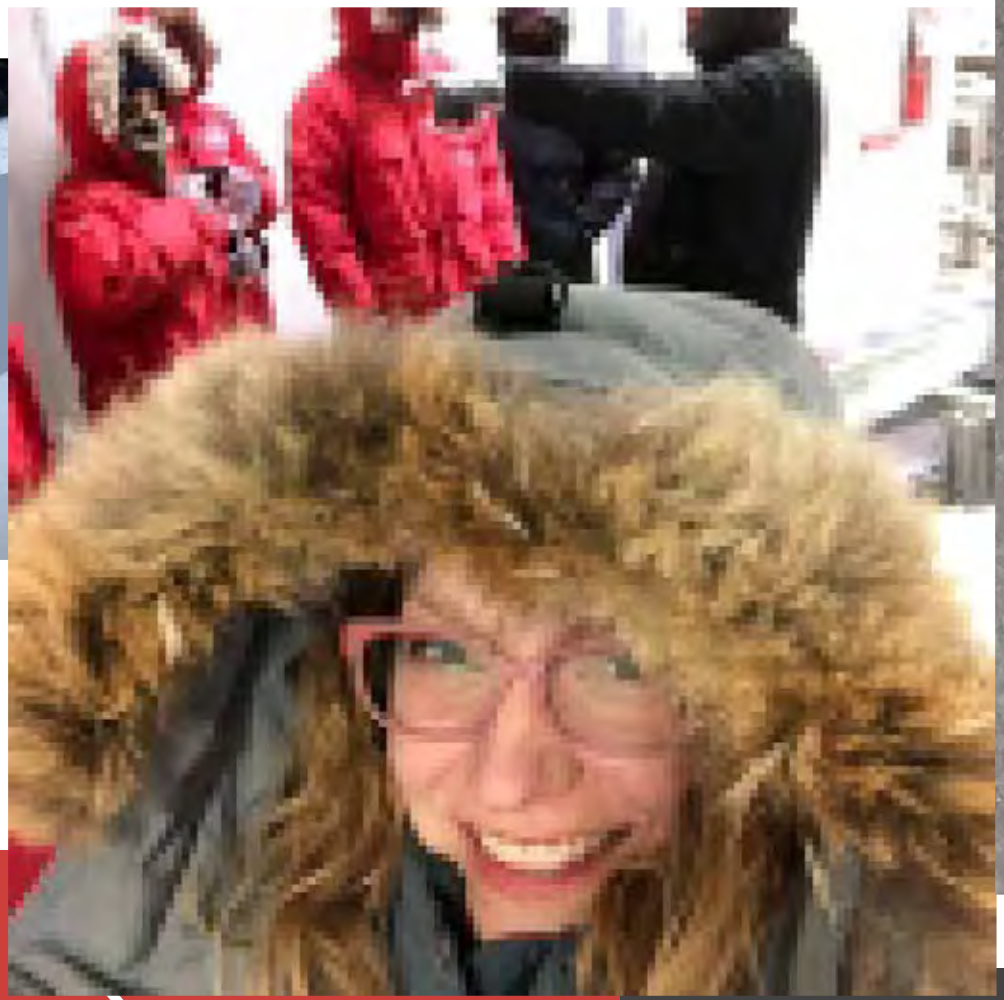
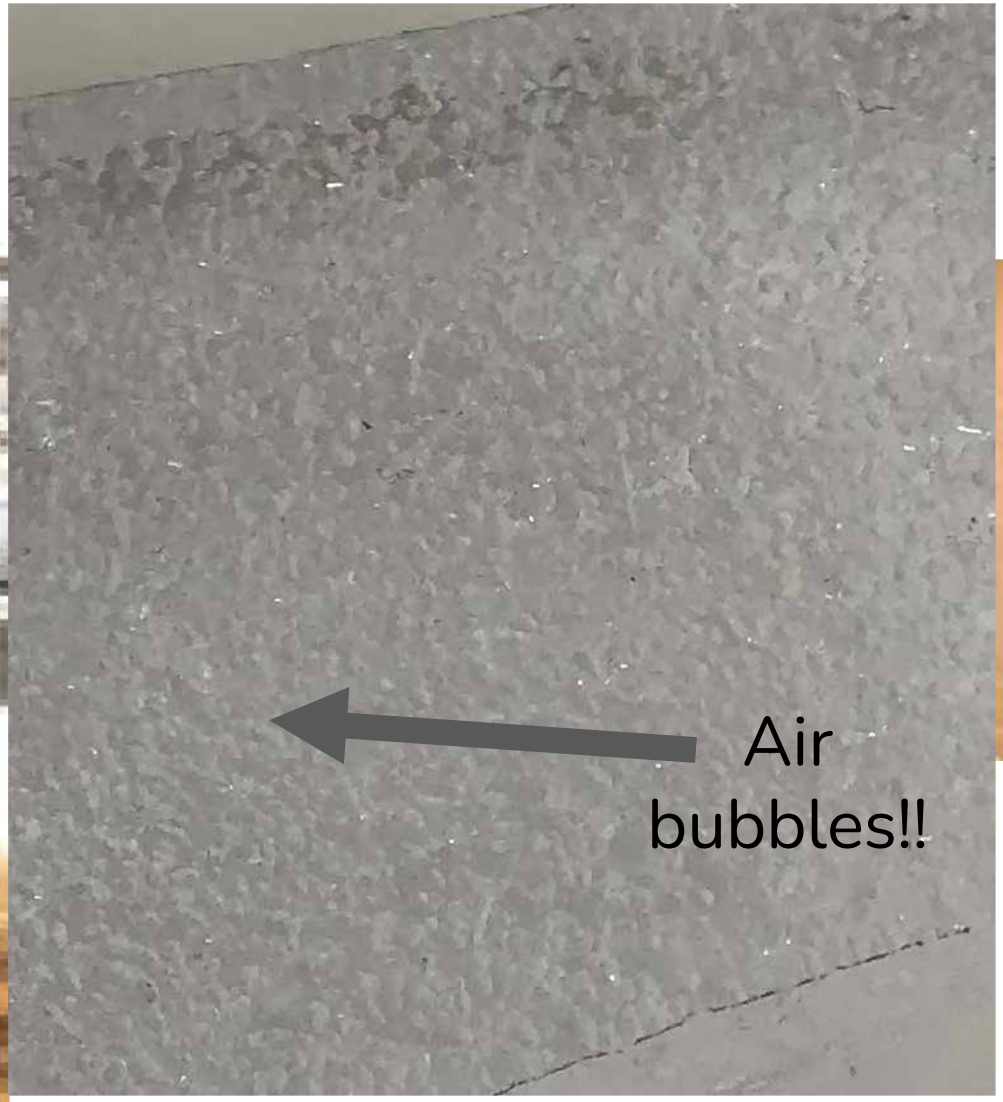
Ice Cores

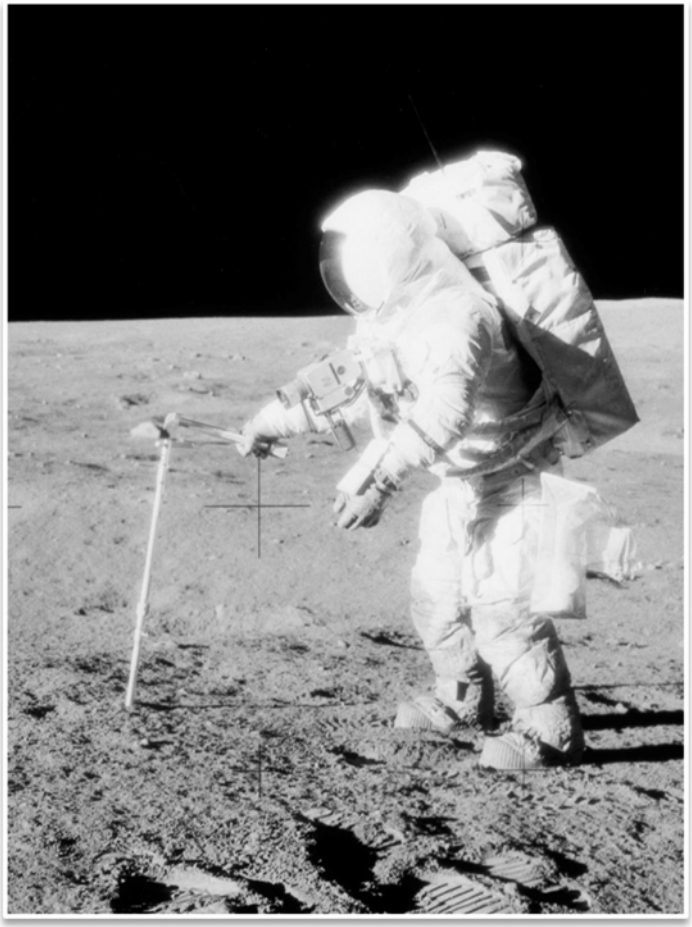


Ice Cores





Cores from the Moon!



Collecting Apollo 17 73002 on lunar surface

Images from NASA

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Cores from the Moon!

Images from NASA

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Cores from the Moon!

Apollo core team: Andrea Mosie, Charis Krysher, and Juliane Gross

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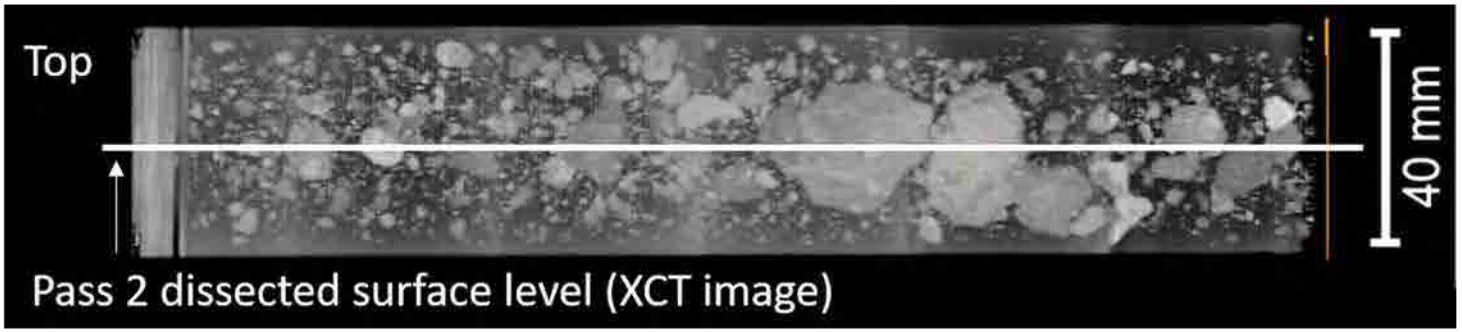
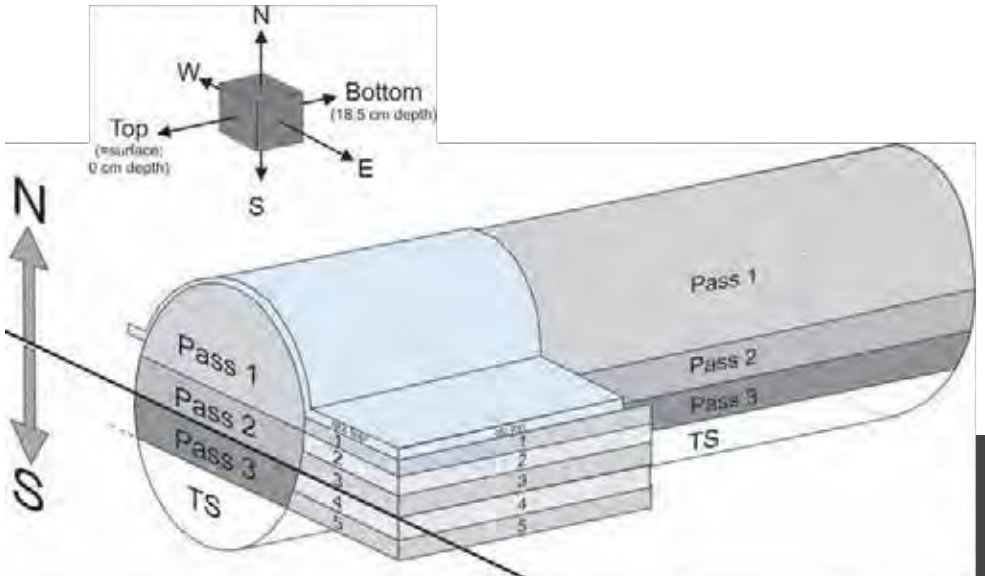
Cores from the Moon!





Images from NASA

Life Cores

Life Core Activity

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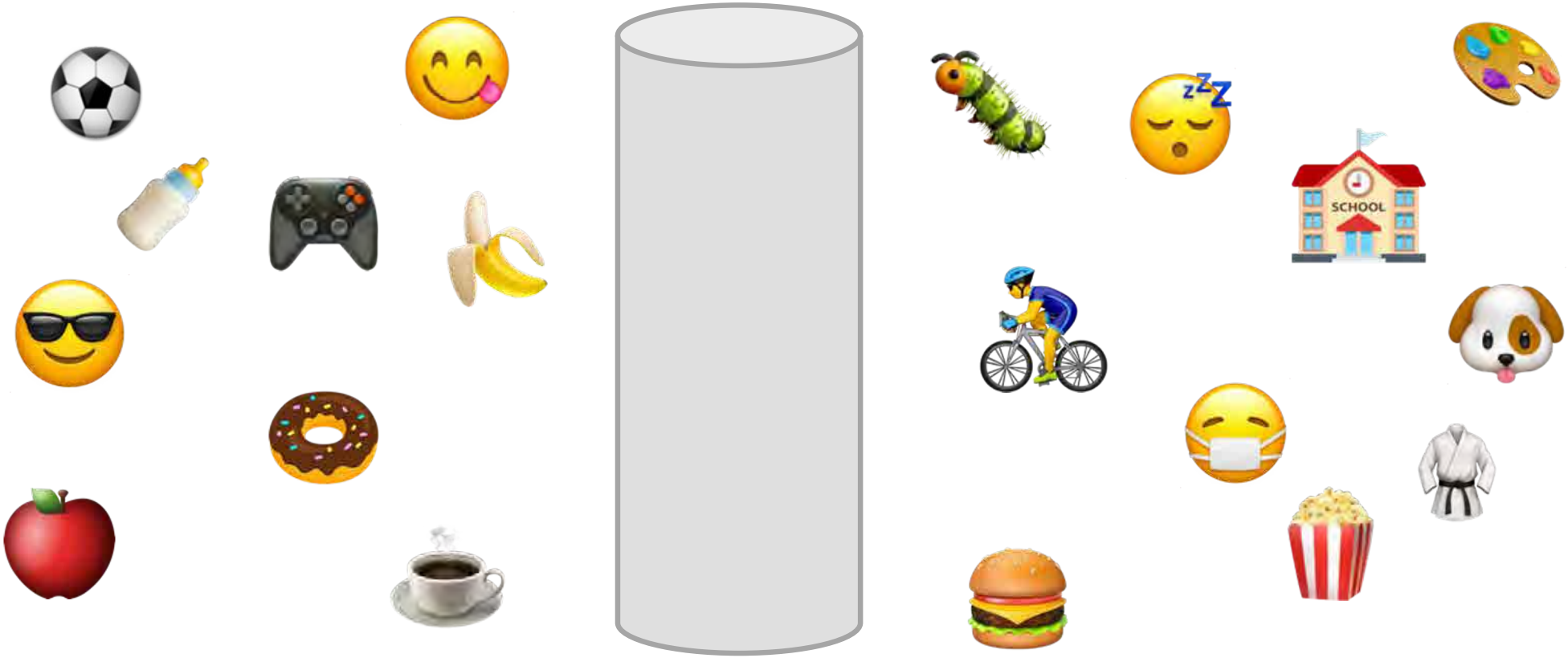
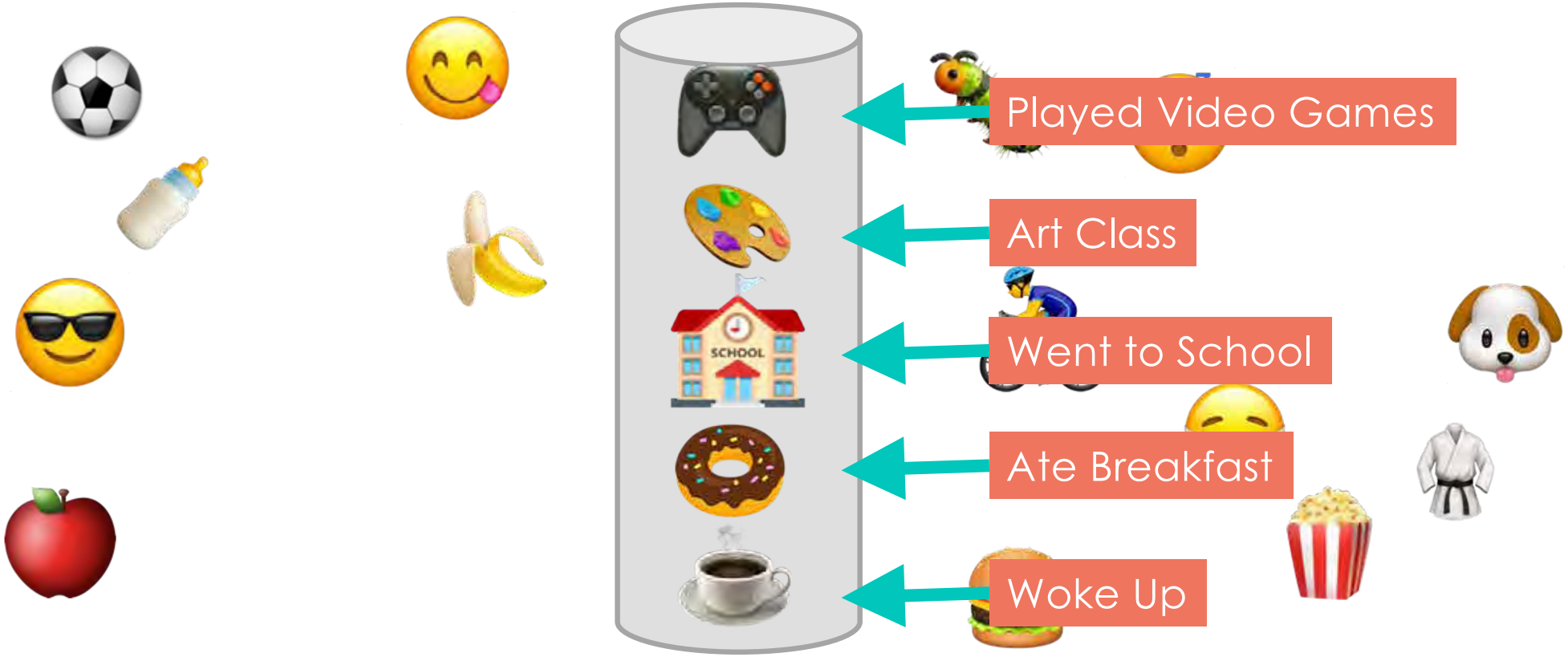
Ask A Geologist Series

Life Cores- Emoji Cores



Life Cores- Emoji Cores



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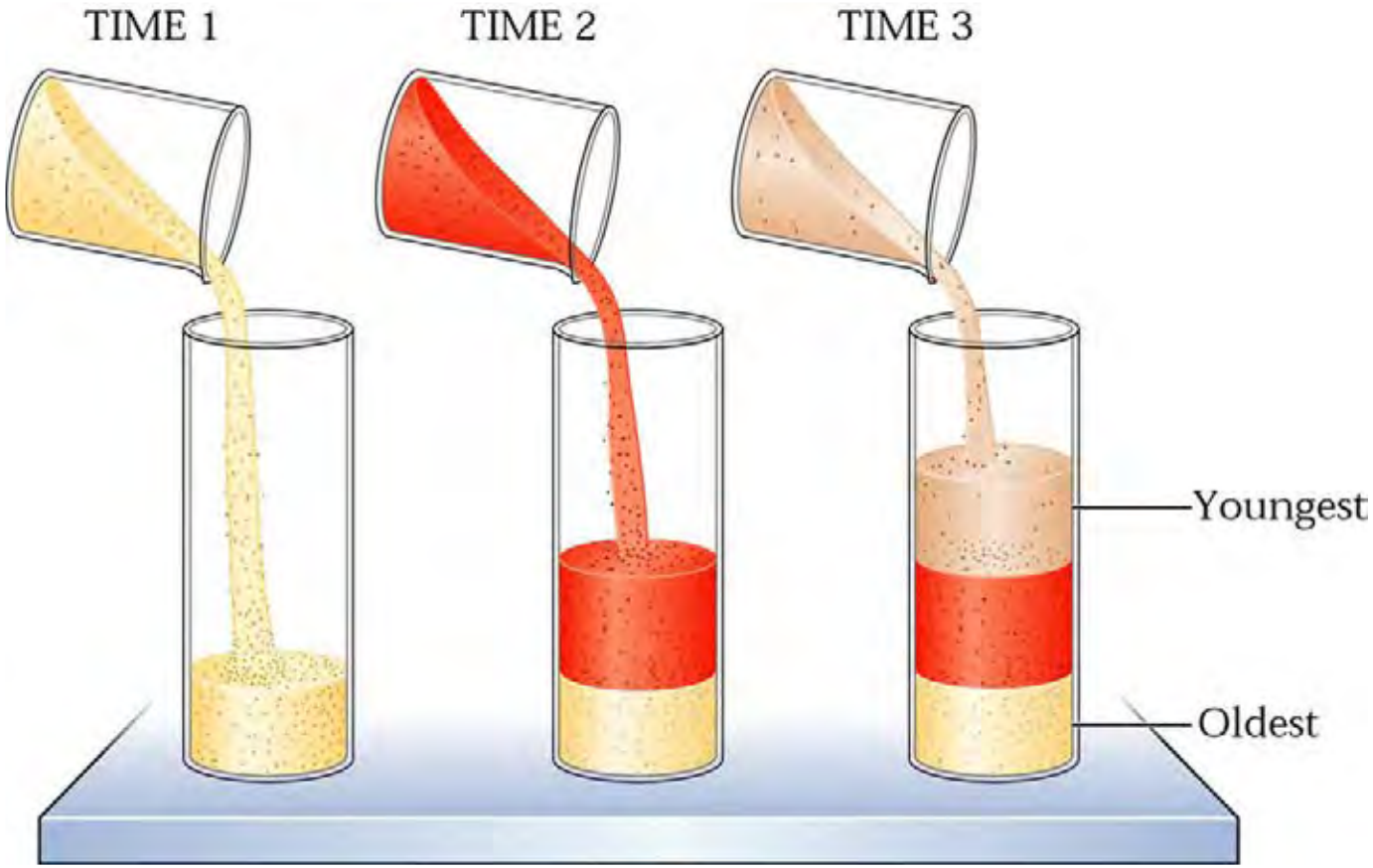
Principles of Stratigraphy



Principle of Superposition

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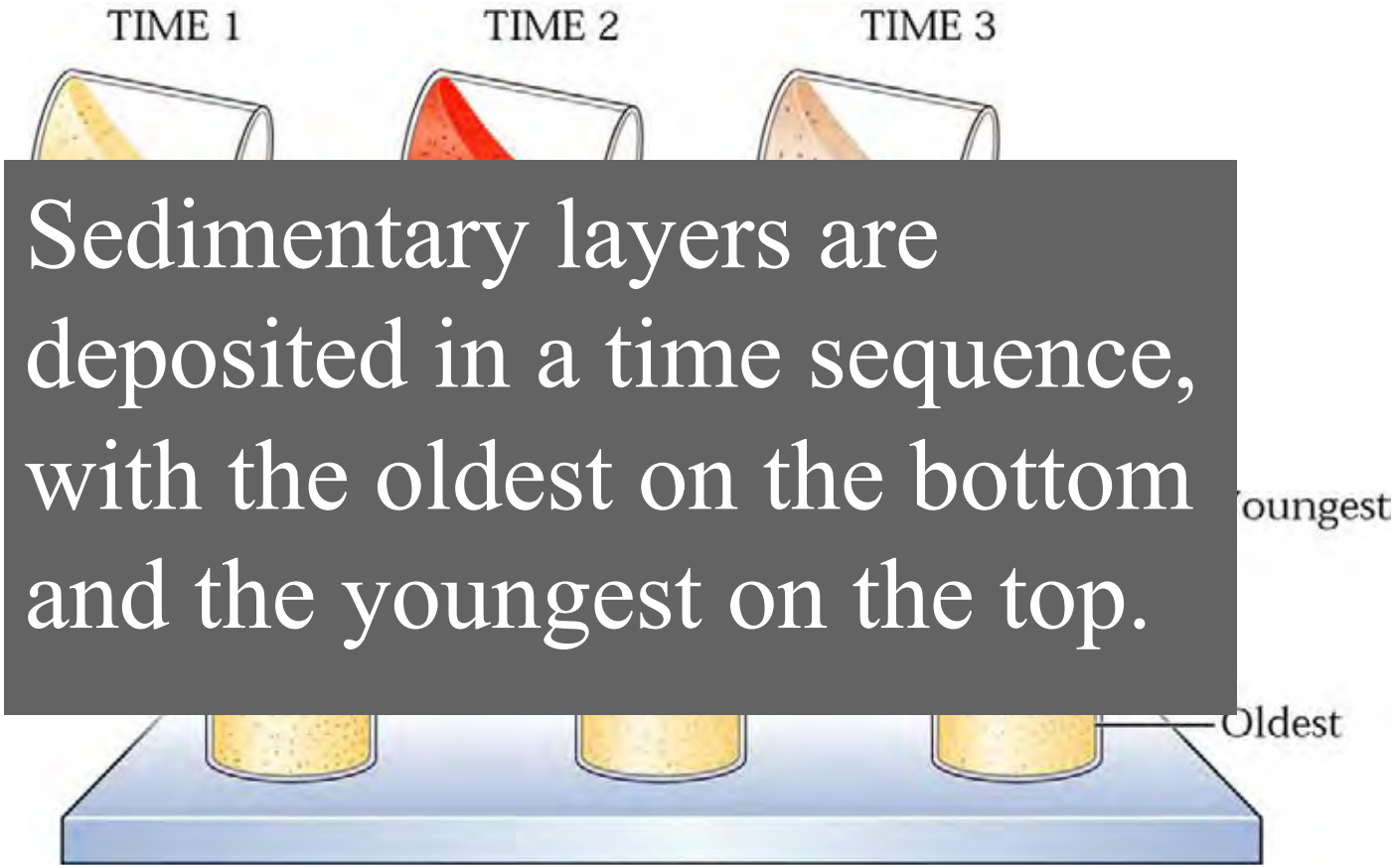
Principles of Stratigraphy



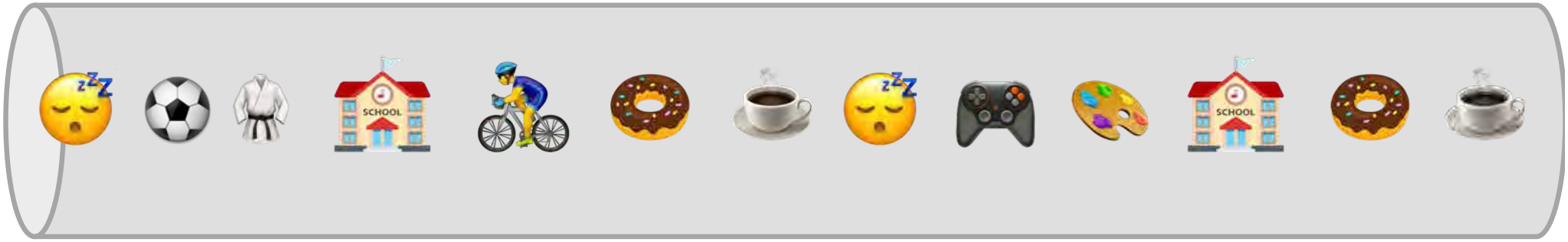
Sedimentary layers are deposited in a time sequence, with the oldest on the bottom and the youngest on the top.

Principle of Superposition

Life Cores- Emoji Cores

Day One

Life Cores- Emoji Cores



Day Two

Day One

Life Cores- Emoji Cores

Core 1

Day Two

Day One

Core 2

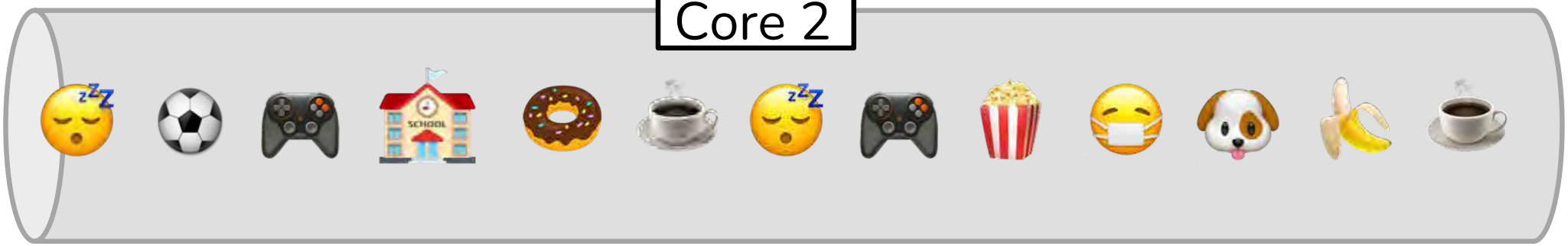
Life Cores- Emoji Cores

Core 1

Day Two

Day One

Core 2



Day Two

Day One

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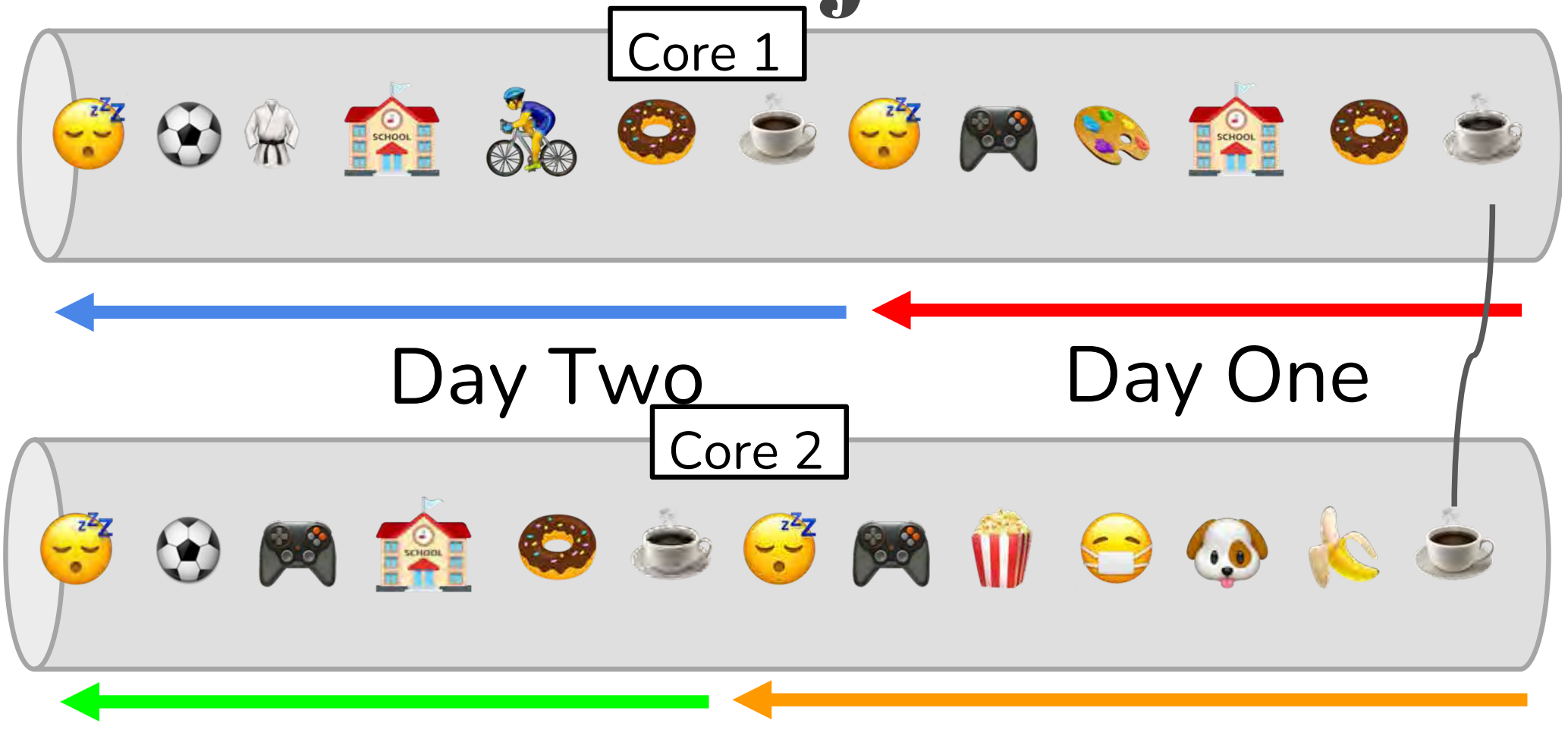
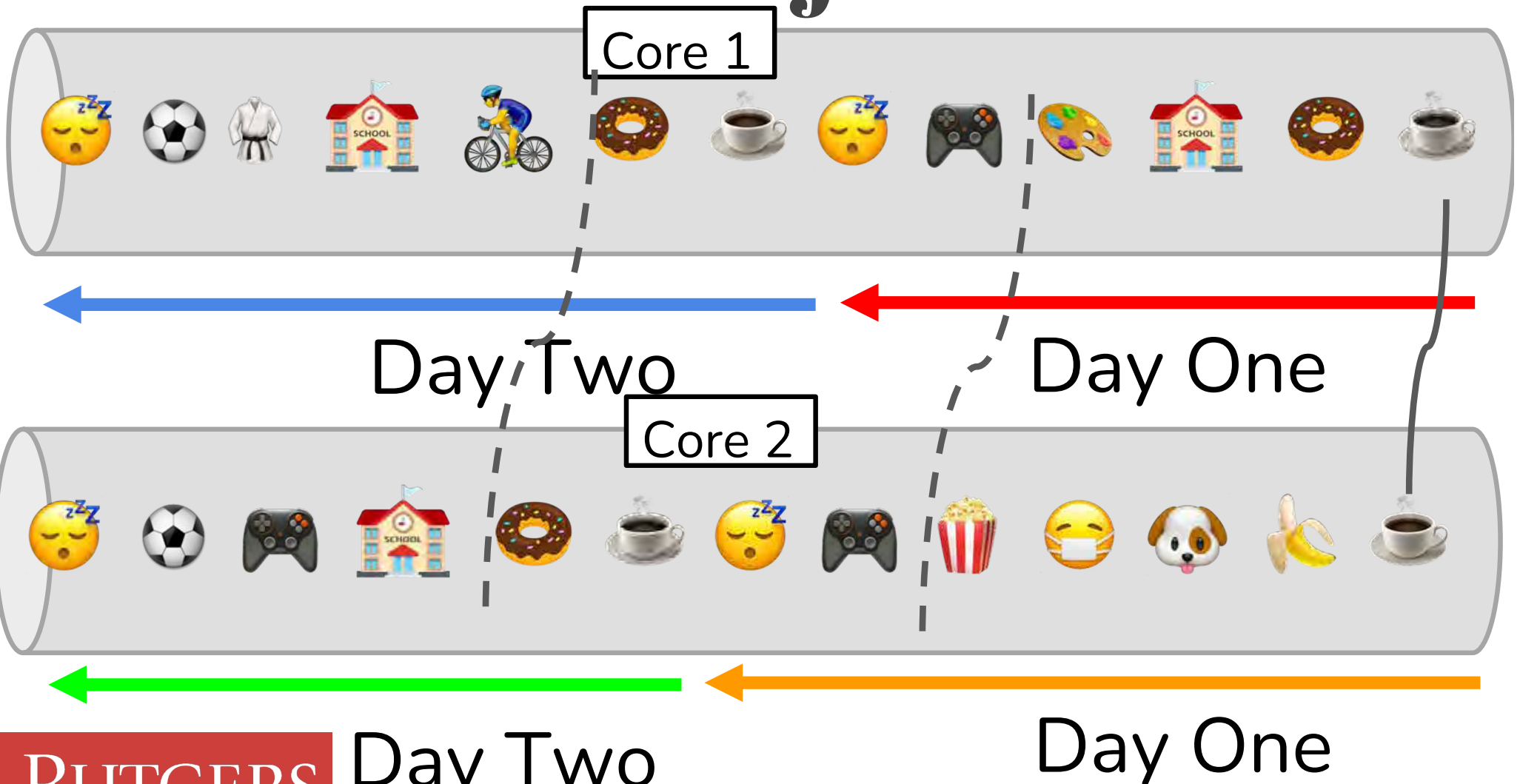
Life Cores- Emoji Cores



Life Cores- Emoji Cores



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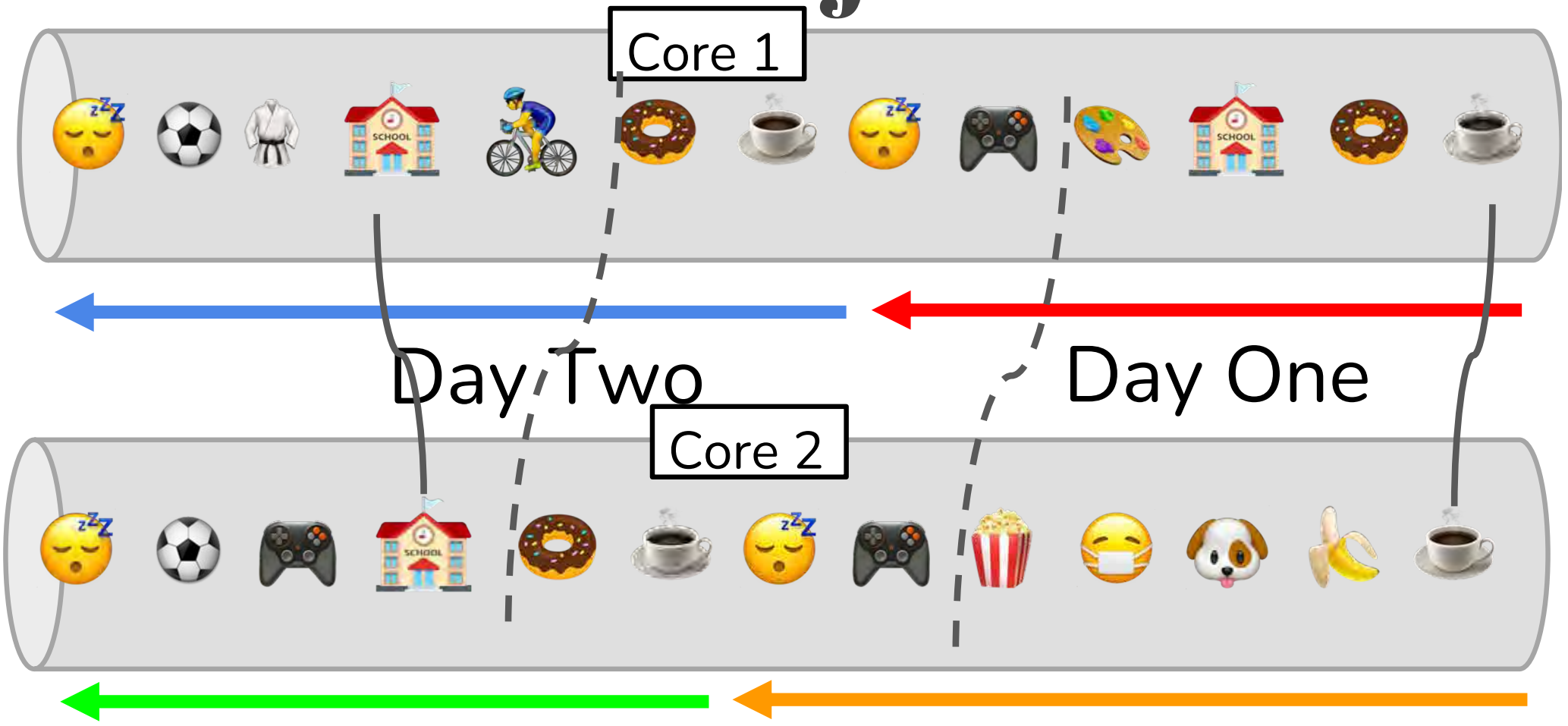
Life Cores- Emoji Cores



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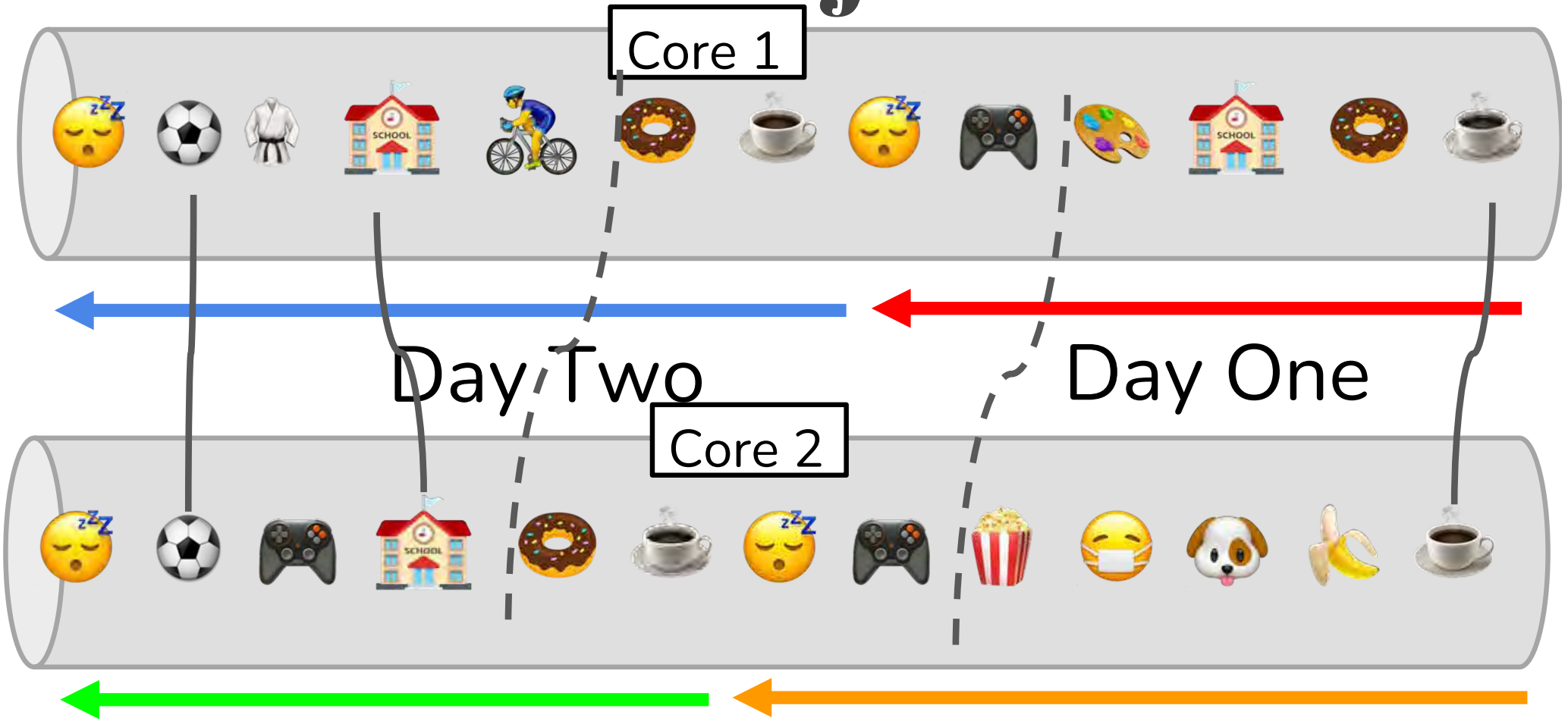
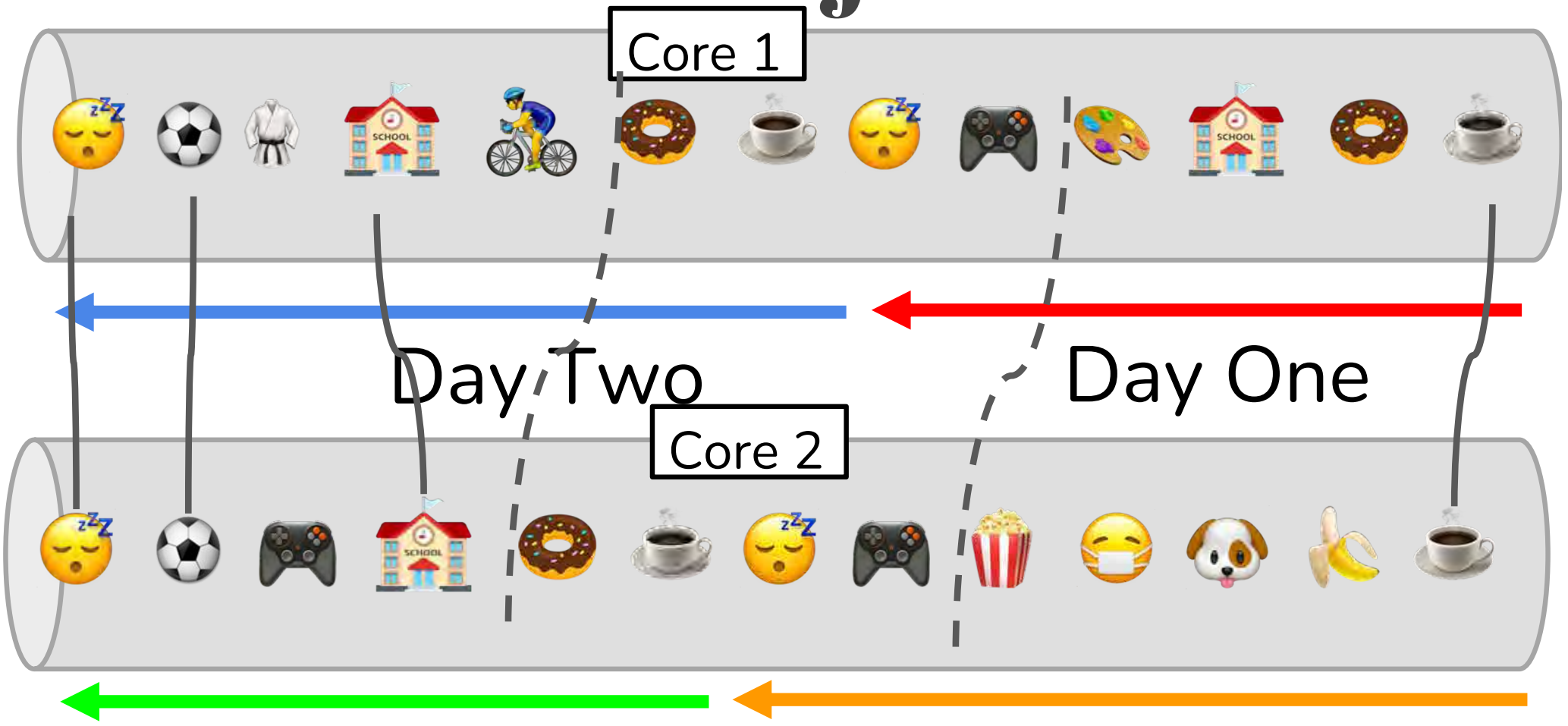
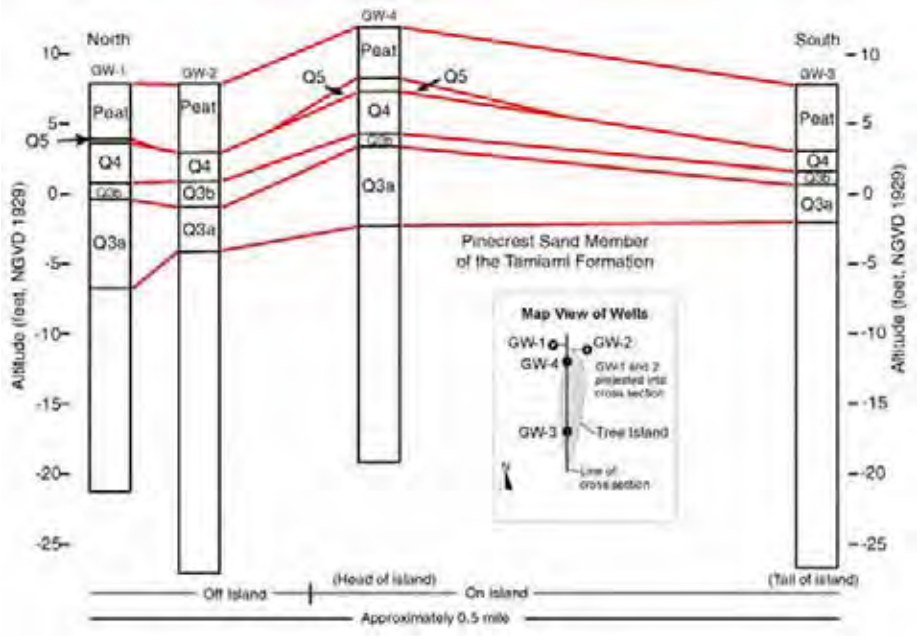


Life Cores- Emoji Cores



Correlation of Events



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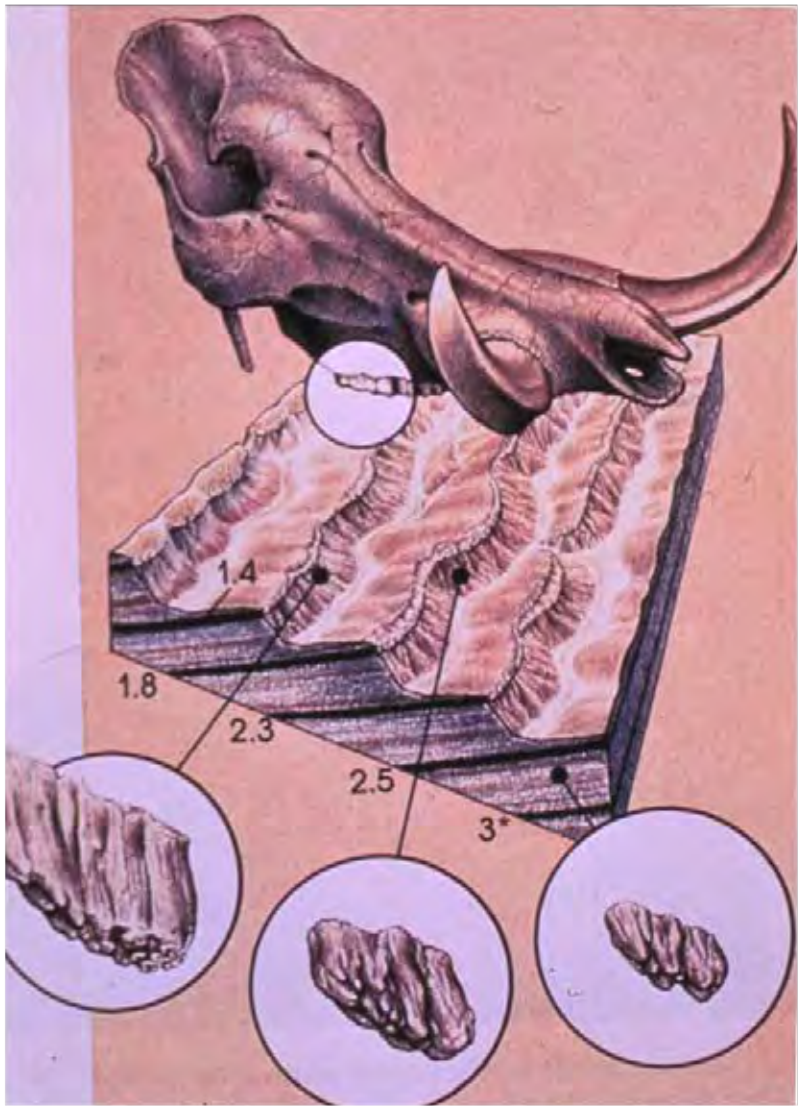
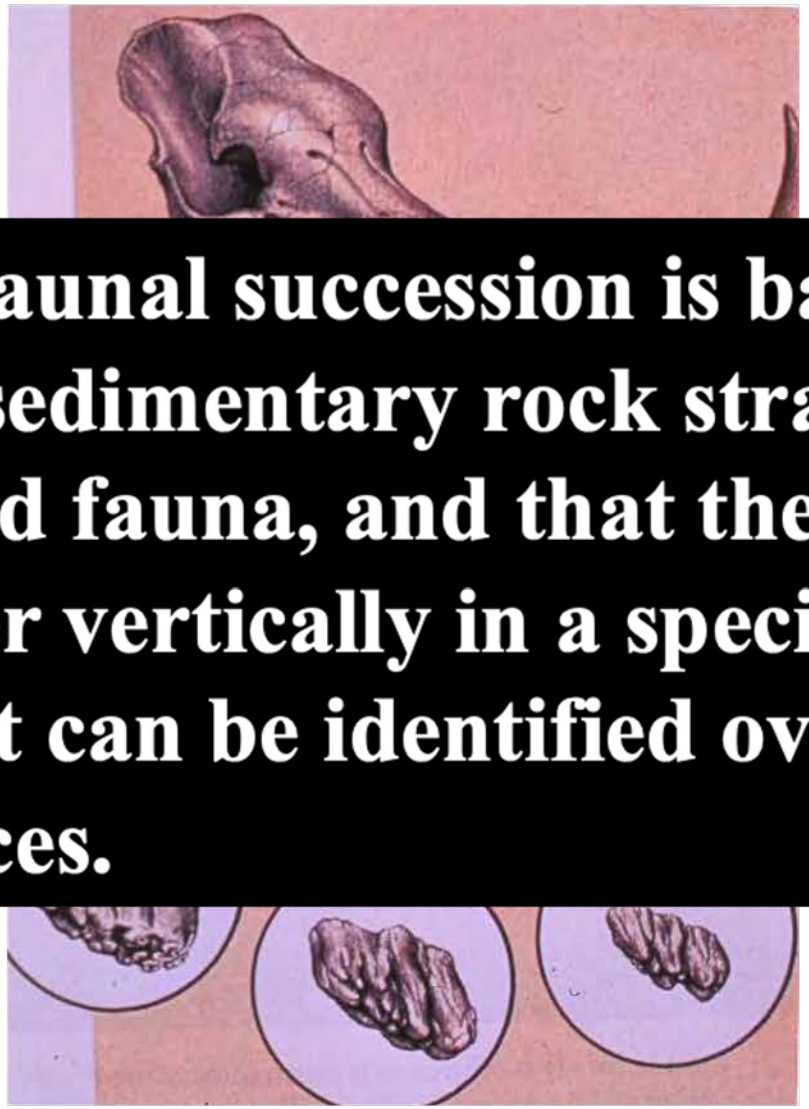
Steno's Principles of Stratigraphy



Faunal (Floral) Succession

Steno's Principles of Stratigraphy



The principle of faunal succession is based on the observation that sedimentary rock strata contain fossilized flora and fauna, and that these fossils succeed each other vertically in a specific, reliable order that can be identified over wide horizontal distances.

Faunal (Floral) Succession

Based on First and Last Appearances of Fossils and Trace Fossils

- First Appearance- When something evolved
- Last Appearance- When something went extinct
- Index Fossil- Organism that lives for a brief period of time

What are fossils??

- Remnants or traces of ancient living organisms.
- Once living organisms preserved in rock.
- Form when organisms become buried with sediment.
- Include bones, teeth, footprints, burrows, etc…

Why do we care?

- Paleontology- the study of fossils
- Why do paleontologists study fossils?
- What can fossils tell us about the past?
  - They tell us two main things.

What do these fossils tell us?

What do these fossils tell us?

Paleoenvironment and Paleoecology

They tell us the Environment the organism lived in.

What do these fossils tell us?

What do these fossils tell us?

Antiquity

They tell us the age of the organism.

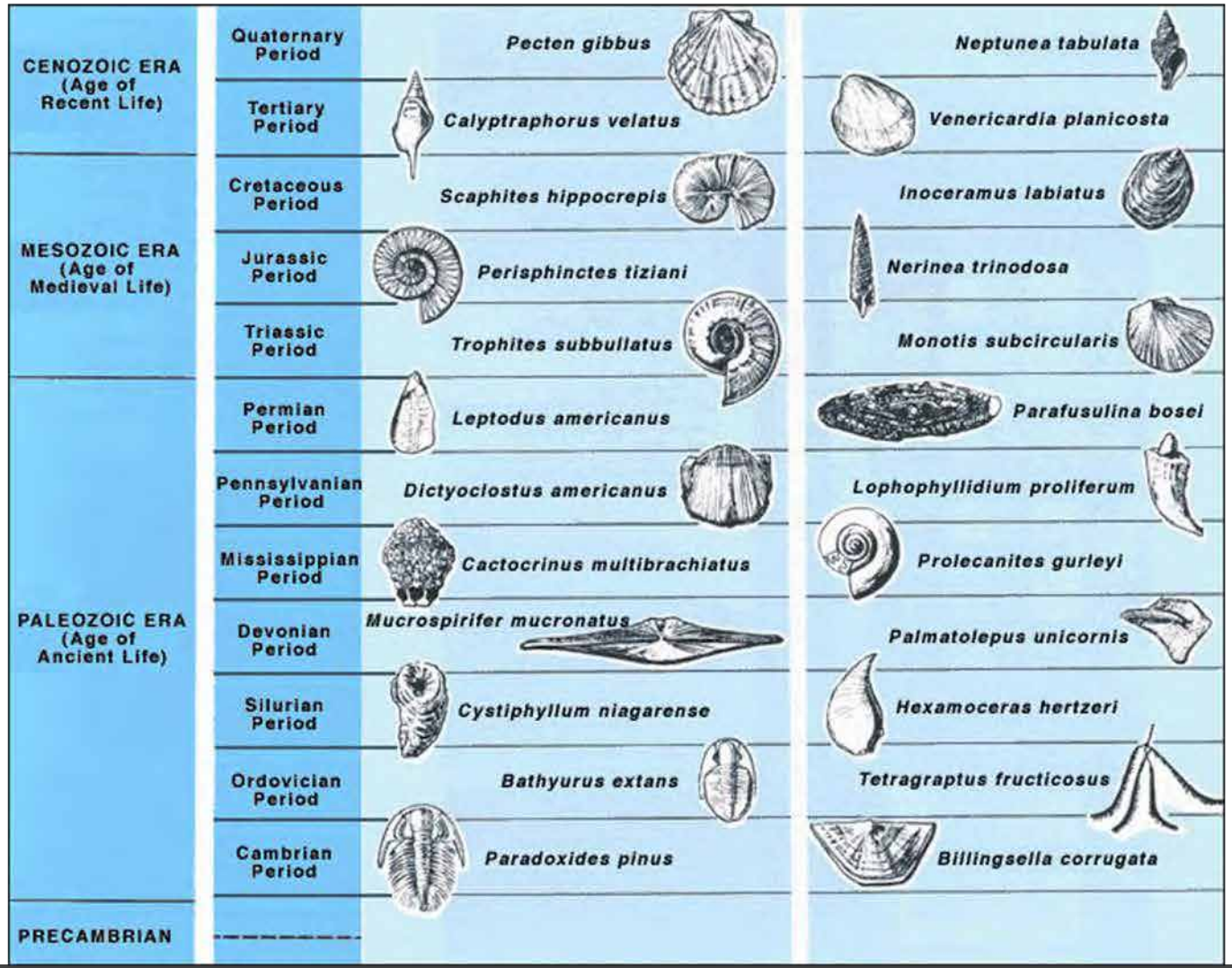
Index Fossils

- Fossilized species used to date/correlate strata.

1. wide distribution
2. alive for only a short time span
3. distinguishing feature(s)

Good Index Fossils

- Trilobites
- Brachiopods
- Forams



Bad Index Fossils??

Bad Index Fossils??

Horseshoe Crabs- Evolved in Paleozoic (540-248 million years ago)